Idaho National Engineering and Environmental Laboratory

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Test Area North Operable Unit 1-07B Final Groundwater Remedial Action Health and Safety Plan

BECHTEL BWXT IDAHO, LLC

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Final Groundwater Remedial Action
Health and Safety Plan

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ABSTRACT

This health and safety plan establishes the procedures and requirements that will be used to eliminate or minimize health and safety risks to persons working at the Test Area North task site during well installation procedures, Groundwater Treatment Facility operations, and treatability studies, as required by the Occupational Safety and Health Administration standard, 29 Code of Federal Regulations 1910.120/1926.65, Hazardous Waste Operations and Emergency Response. It contains information about the hazards involved in performing the work, as well as the specific actions and equipment that will be used to protect persons while working at the task site. This plan has been prepared to comply with the authorized safety basis as detailed in the *Preliminary Hazard Assessment Test Area North Groundwater Treatment Facility Operable Unit 1-07B.*

CONTENTS

FIGURES

TABLES

ACRONYMS

ACGIH	American Conference of Government Industrial Hygienists
AL	action level
ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
anti-C	anticontamination
APR	air-purifying respirators
ARA	Auxiliary Reactor Area
ARDC	Administrative Record and Document Control
BBWI	Bechtel BWXT Idaho, LLC
bls	below land surface
BORAX	Boiling Water Reactor Experiment
CE	construction engineer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CNS	central nervous system
COC	contaminant of concern
CPR	cardiopulmonary resuscitation
CRZ	contamination reduction zone
D&D	decontamination and dismantlement
DAC	derived air concentration
dBA	decibel A-weighted
DCE	dichloroethylene

DCP	dichloropropane
DEQ	Idaho Department of Environmental Quality
DOE	U. S. Department of Energy
DOE-ID	DOE Idaho Operations Office
DOT	U.S. Department of Transportation
DPTU	dissolved phase treatment unit
EC	emergency coordinator
EO	environmental operation
EPA	U.S. Environmental Protection Agency
ER	environmental restoration
ERO	Emergency Response Organization
ERP	environmental restoration program
ESD	explanation of significant differences
ES&H	environmental, safety, and health
ESH&QA	environmental safety, health, and quality assurance
EWP	enhanced work planning
FEWP	field evaluation work plan
FID	flame ionization detector
FY	fiscal year
GWTF	Groundwater Treatment Facility
HASP	health and safety plan
HAZMAT	hazardous material
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSO	health and safety officer
ICS	Incident Command System

IH	industrial hygienist
INEEL	Idaho National Engineering and Environmental Laboratory
IRT	incident response team
ISB	in situ bioremediation
ISCO	in situ chemical oxidation
ISMS	Integrated Safety Management System
IWCP	Integrated Work Control Process
JES	job entry supervisor
JSA	job safety analysis
JSS	job-site supervisor
LLW	low-level waste
M&O	maintenance and operation
MCL	maximum contaminant level
MCP	management control procedure
MSDS	material safety data sheet
NA	natural attenuation
NEPA	National Environmental Policy Act
NGWTF	New Groundwater Treatment Facility
NIOSH	National Institute of Occupational Safety and Health
NPTF	New Pump and Treat Facility
NRTS	National Reactor Testing Station
O&M	operations and maintenance
OMP	Occupational Medical Program
OSC	on-scene commander
OSHA	Occupational Safety and Health Administration

OU	operable unit
PAL	personnel accountability leader
PBF	Power Burst Facility
PCE	tetrachloroethylene
PEL	permissible exposure limit
PID	photo-ionization detector
PLN	plan
PM	project manager
POD	plan-of-the-day
PPE	personnel protective equipment
PRD	program requirements document
QAPjP	quality assurance project plan
QPP	quality program plan
RA	remedial action
RADCON	radiation control
RAO	remedial action objective
RBA	radiological buffer area
RCO	Radiological Control Organization
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
RD	remedial design
RD/RA	remedial design/remedial action
REL	recommended exposure limit
RMA	radiological materials area
ROD	Record of Decision

RWP	radiological work permit
S&H	safety and health
SAP	sample and analysis plan
SOP	standard operating procedure
SOW	scope of work
SRPA	Snake River Plain Aquifer
SS	shift supervisor
STEL	short-term exposure limit
SWP	safe work permit
SWPPT	single-well push-pull test
TAA	temporary accumulation area
TAN	Test Area North
TCE	trichloroethylene
TLV	threshold-limit value
TPR	technical procedure
TRA	Test Reactor Area
TRU	transuranic
TSF	Technical Support Facility
TWA	time-weighted average
USCG	United States Coast Guard
VOC	volatile organic compound
VPP	Voluntary Protection Program
WAG	waste area group
WCC	Warning Communications Center
WCE	well characterization and evaluation

Test Area North Operable Unit 1-07B Final Groundwater Remedial Action Health and Safety Plan

1. INTRODUCTION

This health and safety plan (HASP) establishes the procedures and requirements that will be used to minimize health and safety risks to persons working on operational and construction activities at Test Area North (TAN) in support of the final groundwater remedial action, Operable Unit (OU) 1-07B. This HASP has been prepared to meet the requirements of the Occupational Safety and Health Administration (OSHA) standard, 29 Code of Federal Regulations (CFR) 1910.120/1926.65, "Hazardous Waste Operations and Emergency Response (HAZWOPER)." Its preparation is consistent with information found in the National Institute of Occupational Safety and Health (NIOSH)/OSHA/United States Coast Guard (USCG)/U.S. Environmental Protection Agency (EPA) *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (NIOSH 1985); Idaho National Engineering and Environmental Laboratory (INEEL) *Safety and Health Manuals;* and INEEL *Radiological Controls Manual* and *Radiation Protection Manual.* This HASP has been prepared to comply with the authorized safety basis as detailed in the *Preliminary Hazard Assessment Test Area North Groundwater Treatment Facility Operable Unit 1-07B* (INEEL 1996).

This HASP governs all work that is performed by employees of Bechtel BWXT Idaho, LLC (BBWI) and to project personnel and employees of other companies, or U. S. Department of Energy (DOE) laboratories. This work includes the following:

- Well drilling activities
- Treatment facility construction activities
- Treatment facility operations and maintenance
- Well TSF-05 surge and stress
- Geophysical downhole probing of wells
- Groundwater monitoring
- Natural attenuation (NA) field tests
- In situ chemical oxidation (ISCO) field tests
- In situ bio remediation (ISB) field tests.

This HASP will be reviewed and revised by the health and safety officer (HSO) in conjunction with project construction engineer (CE), other health and safety professionals, and the BBWI environmental restoration (ER) compliance officer or designee, as necessary, to ensure the effectiveness and suitability of this HASP.

1.1 INEEL Site Description

The Idaho National Engineering and Environmental Laboratory (INEEL), formerly the National Reactor Testing Station (NRTS), encompasses 2,305 km^2 (890 mi^2) and is located approximately 55 km (34 mi) west of Idaho Falls, Idaho (see Figure 1-1).

The United States Atomic Energy Commission, now the DOE, established the NRTS, now the INEEL, in 1949 as a site for building and testing a variety of nuclear facilities. The INEEL has also been the storage facility for transuranic (TRU) radionuclides and radioactive low-level waste (LLW) since 1952. At present, the INEEL supports the engineering and operations efforts of DOE and other federal agencies in areas of nuclear safety research, reactor development, reactor operations and training, nuclear defense materials production, waste management technology development, and energy technology and conservation programs. The DOE Idaho Operations Office (DOE-ID) has responsibility for the INEEL, and designates authority to operate the INEEL to government contractors. BBWI, the current primary contractor for the DOE-ID at the INEEL provides managing and operating services to the majority of INEEL facilities.

1.2 Task Site Description

Test Area North is located in the northern portion of the INEEL. It consists of four major facilities that were used to develop a nuclear-powered aircraft and to conduct tests that simulate accidents involving the loss of coolant from nuclear reactors. The key area for this final remedial action (RA) is the Technical Support Facility (TSF) area, which is centrally located at TAN (Figure 1-2). The focus of this Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation activity is OU 1-07B TAN Final Groundwater Remediation which includes the remediation of the TAN TSF-05 injection well and the surrounding groundwater contamination areas (TSF-23). Industrial activities at the TSF generated the wastewater that was subsequently introduced into the groundwater via the TSF-05 injection well.

The TSF-05 injection well is shown in Figure 1-2. The well was completed in 1953 to a depth of 93 m (305 ft). The well has a 30-cm (12-in.) diameter casing and is screened from 55 to 74 m (180 to 244 ft) and from 82 to 93 m (269 to 305 ft) below land surface (bls). The injection well was used from 1955 to 1972 to dispose TSF generated industrial and sanitary wastewater into the Snake River Plain Aquifer (SRPA). The well was also used in the late 1950s and early 1960s to dispose concentrated evaporator sludge from the processing of low-level radioactive and process wastes.

Sampling (1987 to 1990) of the drinking water and other TAN area wells during this time period confirmed the presence of trichloroethylene (TCE) in the aquifer and also identified tetrachloroethylene (PCE) as a contaminant that exceeded the drinking water standards. Table 1-1 presents ranges of contaminant concentrations in the groundwater. The TSF-05 injection well was subsequently identified as the source of the contamination.

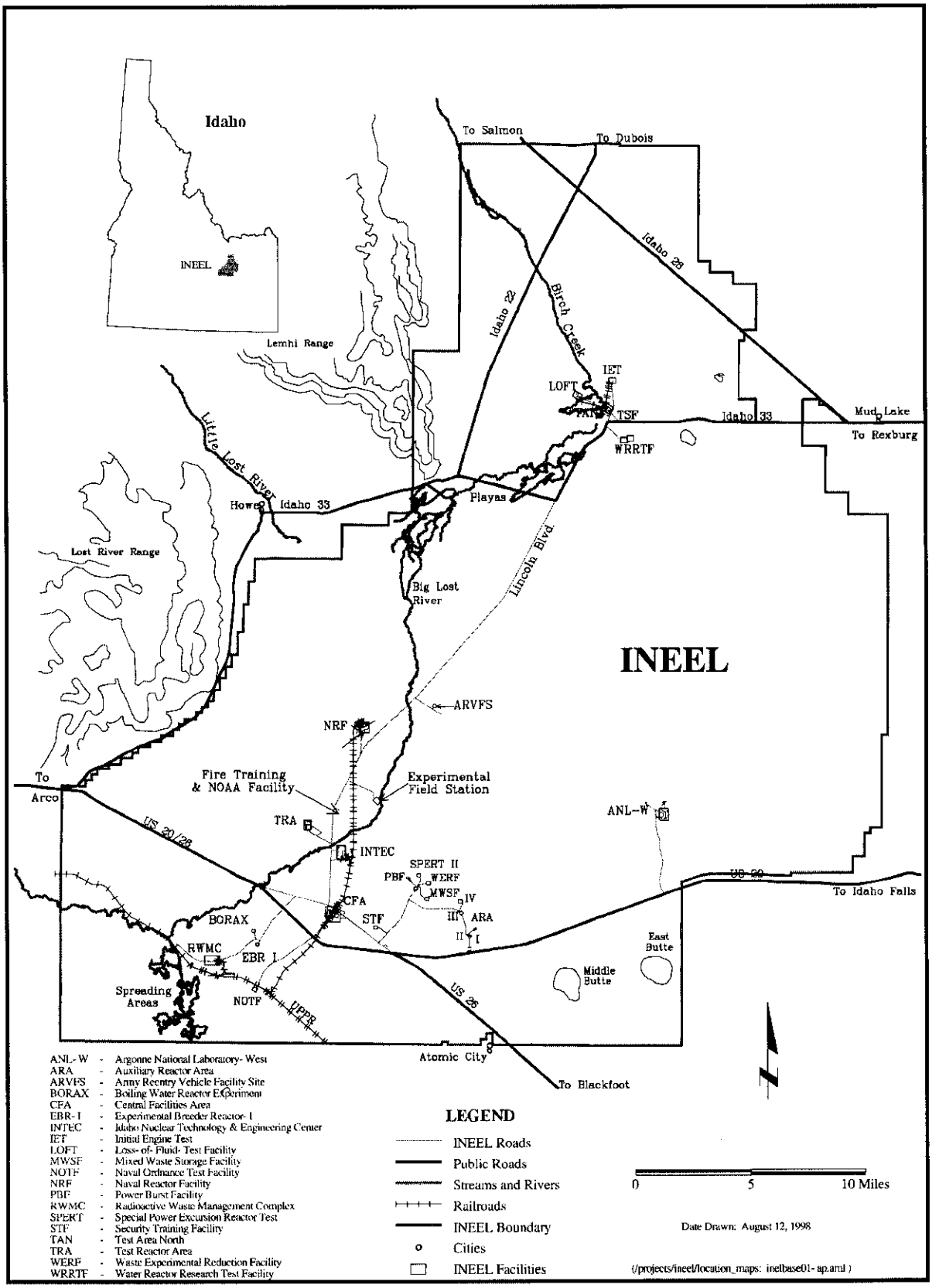


Figure 1-1. Map of the INEEL Site showing location of major facilities.

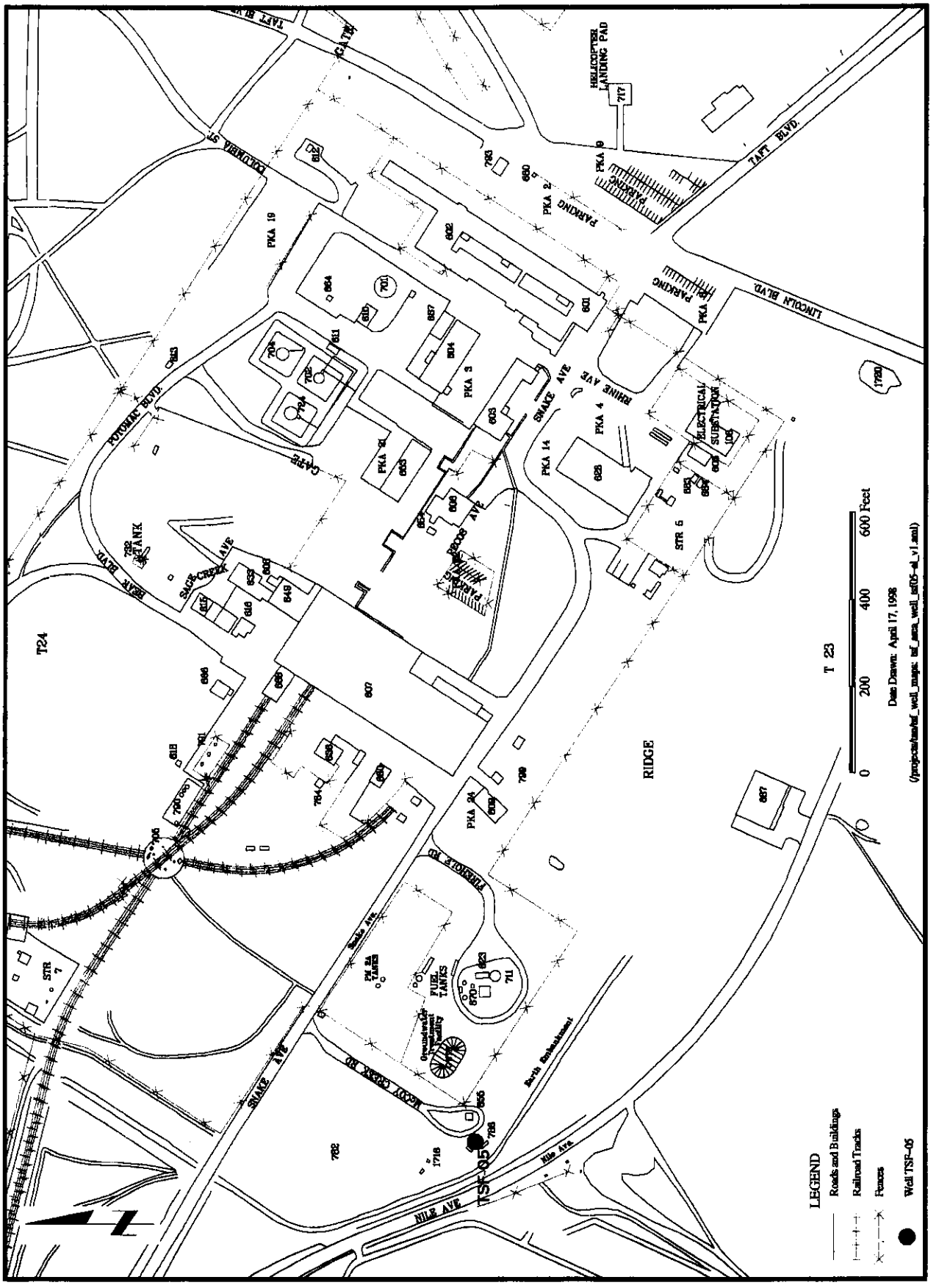


Figure 1-2. TAN Technical Support Facility.

Table 1-1. Validated results showing the range of contaminant concentrations.[a, b]

Contaminant	TSF-05 Injection Well	TAN-25 Monitoring Well	TAN-26 Monitoring Well	MCL[c]
Organic Compounds (μg/L)				
PCE	14–440	4–<1,000[d]	14–26	5
TCE	4,400–164,000	3,400–17,000	480–2,200	5
Cis-1,2 DCE	2,800–15,000	890–3,500	165–1,700	70
Trans-1,2 DCE	1,300–13,000	450–2,000	16–63	100
Radionuclides[e] (pCi/L)[e]				
Sr-90	530–2,310	370–440	0.8–4	8
Tritium (H-3)	11,400–29,600	7,500–14,200	3,500–4,800	20,000
U-234	1.0 E–02-17	7–10	1.7–3.4	30
U-235	6.43E-04–1.7E-01	—	—	30
U-238	7.08E-04–4.4E-01	0.64	1.4	30
Am-241/ Pu-238	8.83E-02–2.19E-01	3 E-02 < 0.2	7 E-02 < 0.2	15[f]
Pu-239/ Pu-240	6.88E-02–1.8E-01	6 E-02 < 0.2	0.1 < 0.2	15[f]
Cs-137	1,600–92,600	90–570	<30	119
Co-60	8.72–7,430	<20	<20	100[g]

a. Values are from the OU 1-07B remedial investigation, OU 1-07A final progress report for Batches 1 through 31, Phase 0 characterization, and OU 1-07B surge and stress, and groundwater monitoring through 10/96.

b. Key: — indicates not sampled; <(number) indicates less than the detection limit.

c. MCL = maximum contaminant level per Federal Drinking Water Standards. The maximum contaminant level (MCL) for U-234 is for the U-234, -235, and -238 series and is from a proposed rate dated July 18, 1991. The MCL for Cs-137 is derived from a corresponding 4 mrem/yr effective dose equivalent to the public, assuming lifetime intake of 2 L/day of water. These are proposed EPA MCLs from 1990.

d. Dilution factors of 1,000 and 200 were used during the March and June 1994 sample analyses, respectively. These dilution factors raised the detection limit for tetrachloroethylene (PCE) to 1,000 mg/L for the March 1994 analysis and 200 mg/L for the June 1994 analysis.

e. Uncertainties are not provided in the table, but are reported with the original data.

f. The MCL is for gross alpha particle activity (including radium-226, but excluding radon and uranium).

g. EPA (1985) Primary Drinking Water Standard.

DCE = dichloroethylene

Additional sampling of the TSF-05, in August 1992, indicated the presence of 1,2 dichloroethylene (DCE) as well as the other contaminants. The presence of the TCE and PCE was further confirmed by the sampling results of the TSF-05, TAN-25, and TAN-26 wells in June 1993.

1.3 Scope of Work

The objective of the OU 1-07B RA is to remove and/or contain the hot spot secondary source and to remediate the downgradient contaminated groundwater. These activities are intended to reduce the potential risk to human health by reducing groundwater contamination and preventing the ingestion of contaminated groundwater by future residents at the site. The remedial action also includes performing treatability studies on alternate treatment technologies. The contaminants of concern (COCs) listed in the Record of Decision (ROD) are TCE, cis- and trans-1,2-DCE, PCE, Sr-90, tritium (H-3), Cs-137, and uranium-234 (U-234). Trichloroethylene TCE is being used as an indicator for defining the dissolved groundwater plume because it is the most widely distributed COC.

This project will be implemented in the following three phases:

1. Phase A—Transition from OU 1-07A interim action activities to the OU 1-07B final RA.

2. Phase B—Containment and/or removal of the "hot spot" area (the area around TSF-05) and technology evaluation treatability studies.

3. Phase C—Capture and treat a sufficient portion of the dissolved phase plume beyond the hot spot to provide for aquifer cleanup within 100 years of the date of ROD signature.

Figure 1-3 identifies the OU 1-07B area of contamination and associated OU 1-07B planned facilities.

1.3.1 Phase A—Transition of OU 1-07A Interim Action Activities to the OU 1-07B Final Remedial Action

The purpose of Phase A was to pump and treat contaminated groundwater in the vicinity of the TSF-05 injection well, and to initiate surge and stress pumping of the hot spot for removal of the secondary source of TCE contamination.

Phase A activities included:

1. Pumping of the wells within a 61-m (200-ft) radius of well TSF-05 through the Groundwater Treatment Facility (GWTF) and then reinjecting the treated water into the aquifer.

2. Perform modifications to the GWTF for radionuclide and sludge removal based on the completion of the radionuclide removal testing and analysis of the results.

3. Perform modifications for, and initiate surge and stress pumping of, the TSF-05 injection well.

1.3.2 Phase B—Hot Spot Containment and/or Removal and Treatability Studies

Phase B involves the continuation of pumping and treating water from the extraction wells creating containment in the hotspot area at a rate sufficient to contain the TCE and other contaminants within the 5,000-μg/L TCE plume. In addition, mechanical surge and stress activities will continue on well TSF-05. The objectives of the vigorous surge and stress are to remove as much secondary source material as possible in the vicinity of the borehole and to increase well efficiency.

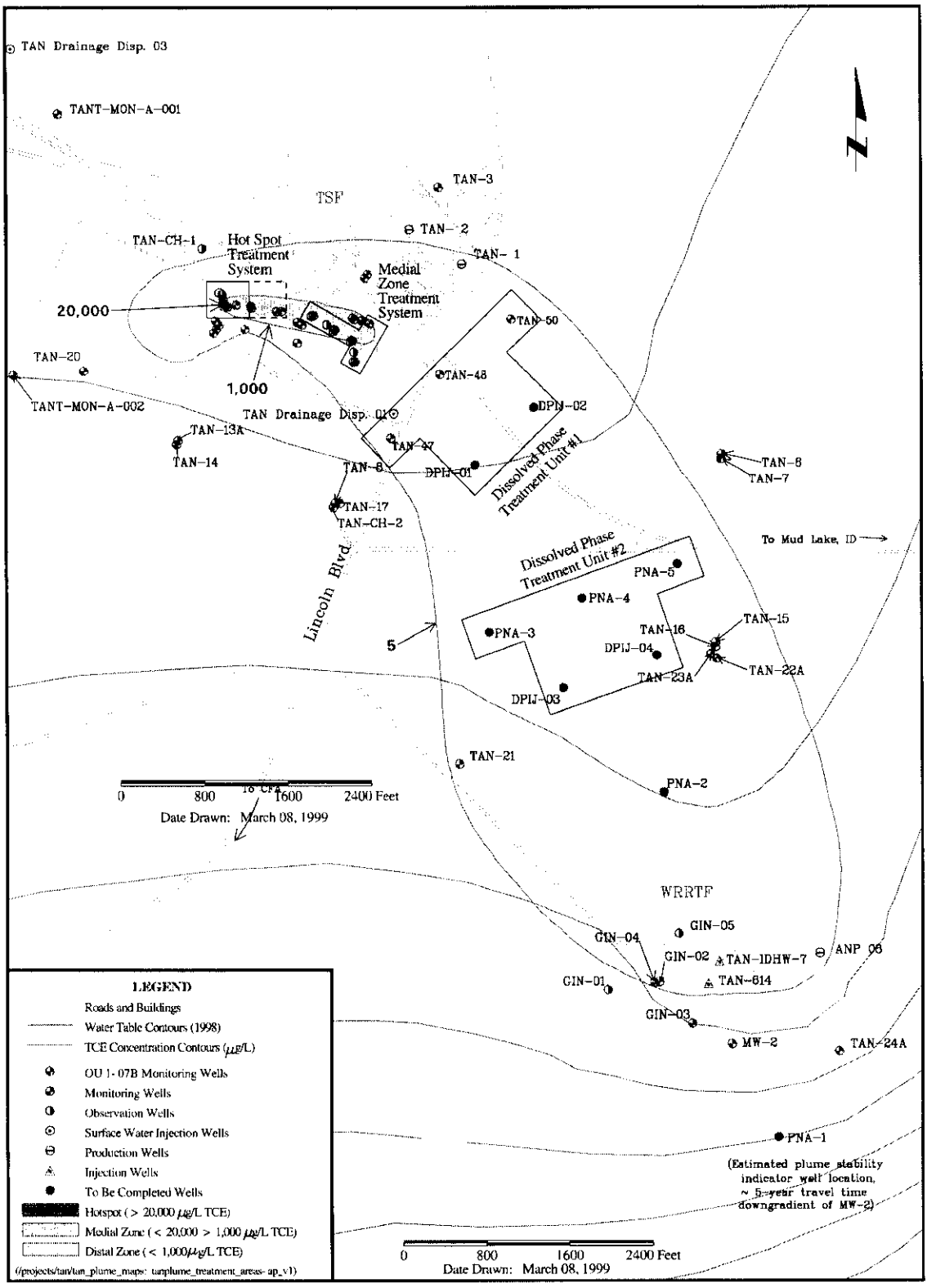


Figure 1-3. Organic compound plume concentrations within the OU 1-07B task site and planned treatment facility location.

1.3.2.1 Hot Spot Containment and/or Removal. The GWTF process system consists of several treatment subsystems and is designed as a continuous treatment system. The OU 1-07B is piped to allow water extraction from three wells: (1) TSF-05, (2) TAN-25, and (3) TAN-26. The treated water is then pumped into the reinjection well (TAN-31). Monitoring wells TAN-25 and -26 were constructed 8 and 15 m (25 and 50 ft), respectively, downgradient from the TSF-05 injection well to monitor changes in contaminant concentrations over time, to evaluate aquifer hydraulic characteristics in the vicinity of TSF-05, and to provide additional locations to extract contaminated groundwater, if required. Other wells in the vicinity of TSF-05 also provide monitoring information and may be used as extraction wells. Figure 1-2 depicts the GWTF and associated wells and their location relative to TAN operations facilities.

Table 1-1 identifies the contaminants associated with the GWTF. Sampling performed during the Fiscal Year (FY) 1994 operation of the GWTF indicated increased concentrations of TCE, DCE, and PCE over the previously reported data in the ROD (INEL 1995), with possible additional presence of dichloropropane (DCP). The DCP analysis at the early phase of operation is not validated and the compound has not been determined to be present in subsequent sampling periods. Beginning in late August 1994, Cs-137 levels were elevated at or above the maximum concentration previously reported. Cs-137 is now a COC. However, radionuclide treatment is only required for surge and stress operations per the RD/RA scope of work (SOW). In addition, radionuclide discharge standards have not been established for the OU 1-07B.

Contamination has been found from the top of the water table at 61 m (200 ft) to at least 122 m (400 ft) bls. The highest groundwater contamination levels are found near TSF-05, TAN-25, and TAN-26 wells. These levels drop rapidly as the distance from the wells increase. Since the TSF-05 well was constructed in 1953, and operated as an injection well for 20 years, the TCE may have traveled as far as 2.4 km (1.5 mi) south to southeast with the groundwater flow. The other COCs have not been found at levels above drinking water standards at distances more than 0.4 km (0.25 mi) from the well.

1.3.2.2 Treatability Studies. Phase B also includes bench and pilot scale treatability studies to assess promising remediation technologies and a literature search for emerging innovative technologies. Technologies that will be evaluated include:

1. *In Situ Bioremediation*—ISB at TAN involves a complex interaction between hydrology, the native microorganisms, and the delivery of substrates or nutrients to the subsurface. The goal of the bioremediation process is to enhance native bacterial degradation of TCE. The technology evaluation of ISB is focusing on: (a) characterization of the activity of native bacteria at the site, (b) optimization of conditions to encourage TCE degradation, and (c) chemical and hydrologic characterization of the subsurface environment in the plume. A portable structure has been constructed to house bioremediation and airstripper equipment. Pipelines have been fabricated to tie into the existing potable water line, the air stripper system, and wells. Field study activities utilizing the aforementioned facilities and equipment are ongoing during FY-99. The ISB field evaluation work plan (FEWP) (DOE-ID 1998a) identifies specific work activities.

2. *In Situ Chemical Oxidation*—One potential field test may be to inject oxidant into the formation via TSF-05, allow it to react under ambient flow conditions, and then extract by pumping TSF-05. This approach is similar to a large single-well push-pull test. In each cycle, there will be three oxidant injections. Each oxidant injection will consist of a period (a few hours) of oxidant injection, followed by a reaction period (6 days), and an extraction period (a few hours). After the third injection of oxidant, a potable water injection will be made to assess the effect of oxidation on the secondary source.

The actual work to be performed will be identified in the ISCO FEWP, which is scheduled for preparation during FY-99. Upon completion and approval of this document, this health and safety plan will be modified to reflect this work. The planned field season is FY-00.

3. *Natural Attenuation*—The primary objective of NA is to determine whether the combined effects of multiple natural processes will degrade or reduce contaminant groundwater concentrations below regulatory standards within an established remedial time frame. Natural attenuation consists of groundwater monitoring by means of sampling and analysis, natural gradient tracer tests, and potential single-well push-pull tests (SWPPTs) similar to the ISCO pumping tests. The evaluation of NA will be an ongoing process. The hazards involved will be identical to the groundwater monitoring hazards with the exception of tracer tests. Tracer test plans will be developed at a later date to identify exact locations, procedures, and any additional hazards.

4. Groundwater monitoring is a long-term plan to monitor the groundwater at TAN. Monitoring consists of sampling numerous wells at specific time intervals to meet established data objectives. Monitoring is an ongoing process and performed on a quarterly and yearly basis.

Additional Work Under Phase B—The scope of work includes drilling and installing additional wells to depths ranging from approximately 91 to 122 m (300 to 400 ft). Downhole probing, geophysical logging, wells maintenance, and pump removal or installation at any of the TAN wells may continue throughout Phase B activities. Well drilling, logging, and probing will be an ongoing process. As information is gathered, project management will make decisions on the continuation of this work scope. Hazards associated with these activities are identified in Section 8 of this HASP. Additional and specific hazards will be addressed in appropriate work plans.

The following activities will be completed for the above-identified tasks as appropriate:

- Perform preliminary sampling and characterization
- Perform preliminary radiological surveys and hazardous material (HAZMAT) sampling, as necessary
- Prepare National Environmental Policy Act (NEPA) documentation
- Prepare the Storm Water Pollution Prevention Plan, as necessary
- Prepare State Historic Preservation Office documentation, as necessary
- Prepare work control documentation/integrated planning sheets
- Prepare notification and planning documentation, as necessary
- Prepare waste characterization reports and L-0435 forms for waste disposal, as necessary
- Prepare fire hazards analyses for associated facilities.

1.3.3 Phase C—Dissolved Phase Groundwater Treatment with Continuation of Hot Spot Containment and/or Removal

Phase C will implement the default remedy in the ROD for pumping and treating the dissolved phase (>25 µg/L) of the contaminated plume and continue Phase B source containment and/or implement a successful treatability study technology.

Phase C will implement one or more remedial technologies to achieve restoration of the 25 to 20,000 µg/L TCE portion of the plume within the 100-year restoration time frame. Phase C may include (based upon Final Design Review Phase I data evaluation) the continuation of the study of NA for the distal portion of the plume and continuation of hydraulic containment and/or removal of the hot spot and groundwater monitoring activities that were initiated during Phase B. Phase C activities, with the exception of work in the medial zone, is set to begin after the completion of Phase B treatability studies, approximately 5 years after signature of the ROD, and is planned to continue through the year 2025.

Early implementation of Phase C will begin with the construction of a new air stripper system designed to capture and treat the medial zone. Design and construction of the new medial zone treatment system is set to start before the completion of the Phase B treatability studies.

1.3.3.1 Medial Zone—New Pump and Treat Facility. Phase C medial zone remediation will include the design, construction, and operation of a new treatment system with extraction wells located approximately 610 m (2,000 ft) downgradient from the TSF-05 injection well. The purpose of the New Pump and Treat Facility (NPTF) will be to capture and treat groundwater between the hot spot containment zone and the NPTF extraction wells, approximately 610 m (2,000 ft) downgradient. The new facility will operate at between 379 and 946 L/min (100 and 250 gpm). Based on data collected at the extraction location, influent radionuclide concentrations are anticipated to be below maximum contaminant levels (MCLs) and thus the system will not require radionuclide removal treatment.

New Pump and Treat Facility System Description—The NPTF consists of the equipment and piping needed to pump water from Wells TAN-33, -38, -39 and -40; two, 473 L/min (125 gpm) parallel air stripper treatment trains within a new building, with concrete floor and sump, located near TAN-38; and associated piping needed to discharge the effluent water into an injection well. The system will pump water from a combination of the wells at a nominal flow rate of 568 L/min (150 gpm). This water will be treated using the air stripper system to below MCLs for volatile organic compounds (VOCs). The air stripper system will treat extracted water VOCs to below MCLs. The extracted groundwater will be considered F001 listed waste and all components of the extraction system will meet secondary containment requirements required by the Resource Conservation and Recovery Act (RCRA). After the air stripping process, the water will (through request and approval of the Idaho Department of Environmental Quality [DEQ]) be considered to no longer contain the listed hazardous waste and will be discharged to the injection well without having to comply with the secondary containment requirements of 40 CFR 264 Subpart J.

NPTF Process System Requirements—The following is a summary of the general design parameters that were established in the NPTF Functional and Operational Requirements:

- The system will pump and treat water at a normal operating flow rate of 568 L/min (150 gpm), with the capability for processing up to 946 L/min (250 gpm).
- The system will be capable of extracting water separately or in combination from any of the Wells TAN-33, -38, -39, and -40. The water will be reinjected into a new cross gradient

well. Well TAN-36 will not be included in the extraction system because of the relatively low TCE concentrations present at its location. During the well characterization and evaluation (WCE) effort, the highest concentration of TCE measured in 16 samples from long-term and straddle-packer pumping tests was less than 500 µg/L. As noted in the WCE report (INEEL 1998), "extraction from this well would result in inefficient TCE removal relative to extraction from the other four wells which have much higher concentrations."

- The system will operate 24 hours/day, 7 days/week, while maintaining a facility uptime of ≥90%.
- The system will allow for unmanned operation. For design purposes, the maximum length of time needed for unmanned operations will be 4 days.
- The system will have a 25-year operating life.
- The air stripper must remove the VOCs in the extracted water to below the set MCL. Based on the sampling results obtained during the well characterization and evaluation activities, the design influent concentrations for VOCs are as shown in Table 1-2. In order to meet MCLs, the air stripper must obtain a minimum removal efficiency of 99.6%.
- The system will not provide treatment for radionuclide removal.

1.3.3.2 Future New Groundwater Treatment Facility. Should alternative technology evaluations fail at the hot spot, a New Groundwater Treatment Facility (NGWTF) will be designed and constructed at the hot spot. The purpose of the facility will be to treat groundwater to below MCLs for VOCs and to provide hydraulic containment of the source material located within the hot spot. Based on the OU 1-07B explanation of significant differences (ESD), a radionuclide discharge standard will not be applied to this pump and treat system. This system is expected to have an operational life of 25 years and thereafter the facility will be replaced based upon 5-year reviews, as necessary to meet the ROD remedial action objectives (RAOs) within the remedial time frame of 100 years. This hot spot containment system plus the medial zone NPTF and the distal zone dissolved phase treatment units (DPTUs) will support the long term OU 1-07B remediation goals.

Table 1-2. Influent concentration.

Contaminant	Concentration (µg/L)	MCL (µg/L)
TCE	1,100	5
PCE	70	5
Cis-DCE	120	70
Trans-DCE	50	100

TCE = trichloroethene
PCE = tetrachloroethene
DCE = dichloroethene.

1.3.3.3 Future Dissolved Phase Treatment Units. Should NA prove to be inadequate for restoration of the distal zone within the 100-year restoration time frame RAOs, then DPTUs will be designed and constructed to meet long-term remediation goals for the distal zone. These units are expected to be small air strippers that will treat water with TCE concentrations up to 1,000 ppb, and have an operational life of 25 years and thereafter the facility will be replaced based upon 5-year reviews, as necessary to meet the ROD RAOs within the remedial time frame of 100 years.

1.3.3.4 Groundwater Monitoring. Groundwater monitoring for Phase C will be performed in accordance with a groundwater monitoring plan developed for Phase C. The plan will consider and support the RAOs identified in the ROD. Monitoring data will be used to track the greater than 5 μg/L TCE plume, document COC concentration changes over time, provide information on the attenuation rate of the plume, and to evaluate attainment of RAOs. The scope and requirements for groundwater monitoring are addressed in the *Phase C Operations and Maintenance Plan* (DOE-ID 1999) and *the Phase C Groundwater Monitoring Plan* (INEEL 1999).

1.3.3.5 Institutional Controls. Institutional controls will consist of engineering and administrative controls to protect current and future users from health risks associated with groundwater contamination by preventing ingestion of groundwater having concentrations of COCs exceeding MCLs or 10^{-4} to 10^{-6} risk-based concentrations for contaminants without MCLs. The scope and requirements for institutional controls are addressed in the Phase C operations and maintenance (O&M) plan (DOE-ID 1999).

2. TASK SITE RESPONSIBILITIES

The organizational structure for the defined scope of work reflects the resources and expertise required to perform the work, while minimizing risks to worker health and safety and to the environment. The names of the individuals in key roles at the task site, and lines of responsibility and communication are shown on the organizational chart for the TAN RA activities (see Figure 2-1). The following subsections outline the responsibilities of key task-site personnel.

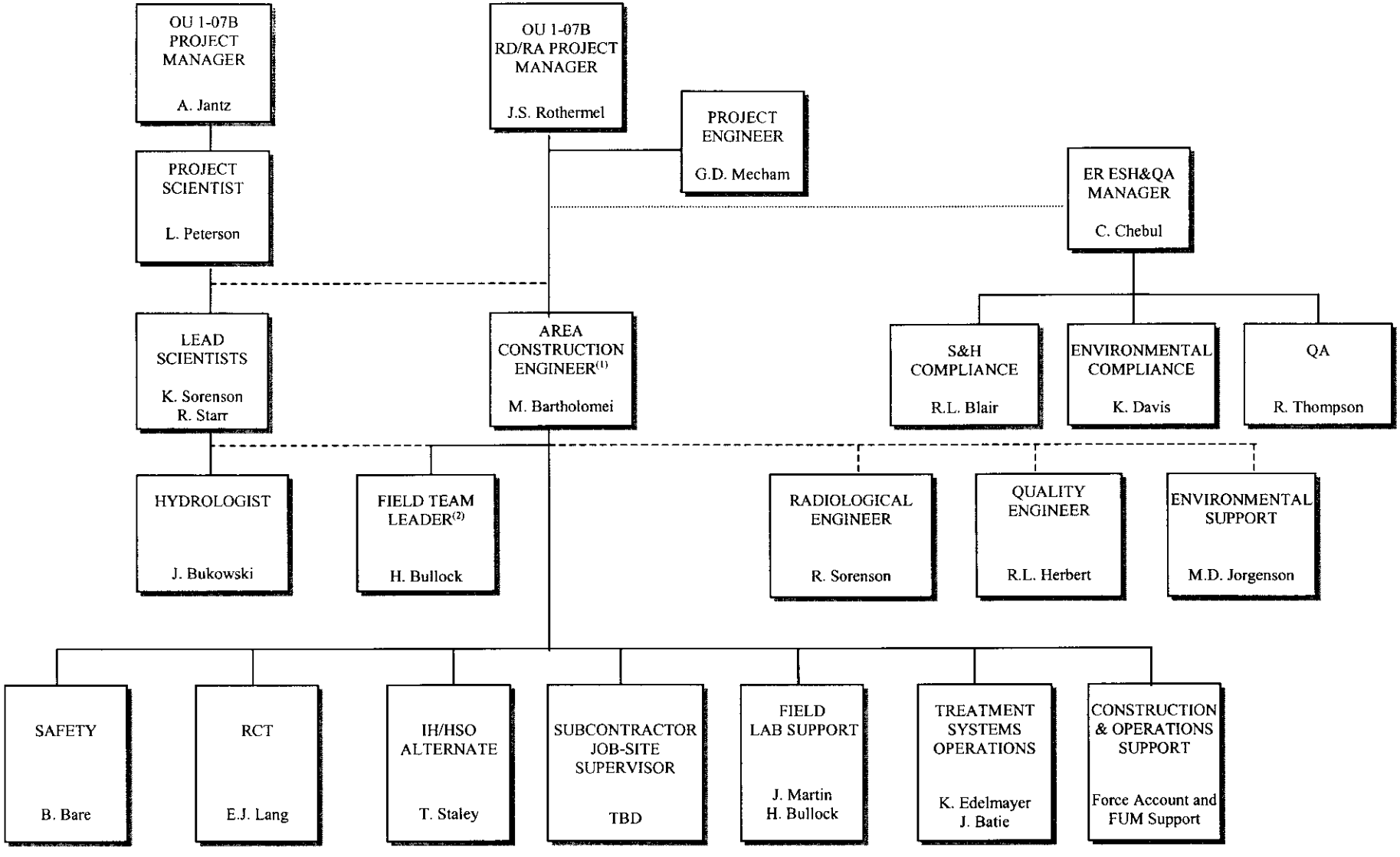
2.1 Environmental Restoration Director

The project environmental restoration (ER) director has the ultimate responsibility for the technical quality of all projects, maintaining a safe environment, and the safety and health of all personnel during field activities performed by or for the environmental restoration program (ERP). The ER director provides technical coordination and interfaces with the DOE-ID Environmental Support Office. The ER director ensures the following:

- Project/program activities are conducted according to all applicable federal, state, local, and company requirements and agreements
- Program budgets and schedules are approved and monitored to be within budgetary guidelines
- Personnel, equipment, subcontractors, and services are available
- Direction is provided for the development of tasks, evaluation of findings, development of conclusions and recommendations, and production of reports.

2.2 ER ESH&QA Manager

The Environmental Restoration Environment, Safety, Health, and Quality Assurance (ESH&QA) Manager, or designee, is responsible for the managing ESH&QA resources that ensure the ESH&QA programs, policies, standards, procedures, and mandatory requirements are planned, scheduled, implemented and executed at the INEEL. The manager directs the ESH&QA compliance of all activities by providing technical and administrative direction to subordinate staff and through coordination with related functional entities. The ER ESH&QA manager reports directly to the ER director. Under the direction of the ER director, the ER ESH&QA manager represents the ER directorate in all ESH&QA matters. This includes responsibility for ER program ESH&QA management compliance and oversight for all ER CERCLA and D&D operations planned and conducted at Waste Area Group (WAG) 1, TAN; WAG 2, Test Reactor Area (TRA); WAG 3, Idaho Nuclear Technology and Engineering Center (INTEC); WAG 4, Central Facilities Area (CFA); WAG 5, Auxiliary Reactor Area (ARA)/Power Burst Facility (PBF); WAG 6, Boiling Water Reactor Experiment (BORAX); WAG 7, Radioactive Waste Management Complex (RWMC); WAG 10, other nongeographic facility locations, and for ER program INEEL-wide environmental monitoring activities.



1) Additional construction engineers may be added as necessary to support field activities. The area CE is the lead for OU 1-07B.
2) Additional field team leaders may be added as necessary to support field activities.

Figure 2-1. Field organizational chart.

The ER ESH&QA manager, or designee, is responsible for the management of the following technical disciplines and implementation of the programs related to these disciplines:

- Radiological control personnel
- Environmental support personnel
- Industrial safety personnel
- Fire protection personnel
- Quality assurance personnel
- Industrial hygiene personnel (matrixed)
- Emergency preparedness personnel (matrixed).

2.3 ER Project Manager

The ER project manager (PM) shall ensure that all activities conducted during the project comply with INEEL ER management control procedures (MCPs) and program requirements documents (PRDs); all applicable OSHA, EPA, DOE, DOT, and State of Idaho requirements; and that tasks comply with INEEL Plan (PLN)-125, *Quality Program Plan (QPP) for the Environmental Restoration Program*, the quality assurance project plan (QAPjP) (INEEL 1995), this HASP, and the sampling and analysis plan (SAP). The PM coordinates all document preparation, field, laboratory, and modeling activities.

2.4 Remedial Design/Remedial Action Project Manager

The remedial design/remedial action (RD/RA) PM shall ensure that all activities conducted during the project comply with the RD/RA project procedures, and applicable INEEL MCPs and PRDs, and all applicable OSHA, EPA, DOE, DOT, and State of Idaho requirements. The PM shall ensure that tasks comply with the INEEL QPP (PLN-125), the QAPjP, this HASP, and the SAP. The PM coordinates all document preparation, field, laboratory, and modeling activities.

2.5 Construction Manager

The construction manager is responsible for field implementation of the project. This responsibility involves ensuring that all project tasks receive appropriate health and safety review before commencement, and that the necessary equipment and facilities are made available to implement the provisions of this plan.

2.6 Project Engineer

The project engineer is responsible for technical oversight and review of the project activities. The project engineer leads the efforts for all OU 1-07B Treatment Facility modifications and is responsible for any design activities associated with new systems and facilities related to OU 1-07B. The project engineer develops special work plans in support of testing and investigations associated with the remedial activities at OU 1-07B. The project engineer evaluates overall facility performance and makes

recommendations for modifications, as necessary. The project engineer is responsible for investigating and resolving problems identified with the remedial actions at OU 1-07B.

2.7 Construction Engineer

The CE is the individual representing OU 1-07B management at the task site, with ultimate responsibility for the safe and successful completion of assigned project tasks. The CE manages field operations and executes the work plan, enforces site control and documents task-site activities, and conducts daily safety briefings at the start of the shift. All health and safety issues at the task site must be brought to the CE's attention.

If the CE leaves the task site, an alternate individual will be appointed to act as the CE. Persons acting as CE on the task site must meet all CE training requirements outlined in Section 4 of this HASP. The identity of the acting CE shall be conveyed to task-site personnel, recorded in the CE daily force report, and communicated to the facility representative when appropriate.

Note: *The CE is also the operations manager for 1-07B managed facilities. All permits must be approved and/or processed through the CE.*

Note: *All non-1-07B Facility work shall be approved/signed by the landlord.*

2.8 Subcontractor Job-site Supervisor

The subcontractor job-site supervisor (JSS) serves as the subcontractor safety representative at the task site. The subcontractor JSS may also serve as the subcontractor PM. The subcontractor JSS is the subcontractor field supervisor for subcontractor personnel assigned to work at the site. The subcontractor JSS and CE work as a team to accomplish day-to-day operations at the task site, identify and obtain additional resources needed at the site, and interact with the HSO, industrial hygienist (IH), safety engineer, radiological engineer, and radiological control technician (RCT) on matters regarding health and safety. The JSS, like the CE, must be informed about any health and safety issues that arise at the task site and may stop work at the site if an unsafe condition exists. The JSS also shares the CE's responsibility for daily prejob briefings (one or the other will conduct the briefing).

2.9 Task-site Personnel

All task-site personnel, including subcontractor personnel, shall understand and comply with the requirements of this HASP. The CE or JSS will brief task-site personnel at the start of each shift. Task-site personnel should identify potentially unsafe situations or conditions to the CE, JSS, or HSO for corrective action. **If unsafe conditions develop, task-site employees are authorized to stop work and notify the CE, JSS, or HSO of the unsafe condition.**

2.10 Occasional Workers

All persons who work on the task site, but are not part of the field team, are considered occasional workers for the purposes of this project. A person shall be considered "onsite" when they are present in or beyond the designated support zone. Occasional site workers per 29 CFR 1910.120/1926.65 must meet minimum training requirements for such workers as described in the OSHA standard and any additional task-specific training that is identified in Section 4 of this HASP.

2.11 Nonworkers

All nonworkers, including INEEL Site employees who are not working on the project or who are nonessential, representatives of DOE, and/or state or federal regulatory agencies, may not proceed beyond the support zone without receiving task-specific HASP training, signing a task-specific HASP training acknowledgement form, receiving a safety briefing, and wearing the appropriate protective equipment. Engineering and administrative controls will be provided and enforced which insures that nonworkers are protected at or below a risk threshold for carcinogenic of 1 × 10E-4 and a hazard index of greater than 1. A fully trained task-site representative (such as the CE, JSS or HSO, or a designated alternate) will escort nonworkers at all times while on the task site. Nonworker personnel shall not enter areas subject to health and safety hazards.

A casual visitor to the task site is a person who does not have a specific task to perform or other official business to conduct at the task site. **Casual visitors are not permitted on the task site.**

2.12 Health and Safety Officer

The HSO (CE or designate) is the person assigned to the task site who serves as the primary contact for health and safety issues. The HSO advises the JSS and/or task-site personnel on all aspects of health and safety, and is authorized to stop work at the task site if any operation threatens worker or public health and/or safety. The HSO may be assigned other responsibilities, as stated in other sections of this HASP, as long as they do not interfere with the HSOs primary responsibilities. The HSO is authorized to verify compliance to the HASP, conduct inspections, require and monitor corrective actions, and monitor decontamination procedures and require corrections, as appropriate. Environmental, safety, and health professionals at the task site (safety engineer, IH, RCT, radiological engineer, environmental coordinator, and facility representative, as necessary) support the HSO.

Persons assigned as the HSO, or alternate HSO, must be qualified (per the OSHA definition) to recognize and evaluate hazards, and given the authority to take or direct actions to ensure that workers are protected. While the HSO may also be the IH, safety engineer, or in some cases the CE (depending on the hazards, complexity and size of the activity involved, and required concurrence from the ER ES&H Manager) at the task site, other task-site responsibilities of the HSO must not conflict (philosophically or in terms of significant added volume of work) with the role of the HSO at the task site.

If it is necessary for the HSO to leave TAN up to one working day, an alternate individual (CE, IH, or other knowledgeable person) will be appointed by the HSO to fulfill this role, the identity of the acting HSO will be recorded in the CE logbook, and task-site personnel will be notified. The HSO will not have to appoint a designee if they can be reached by pager and are absent from TAN less than one working day.

2.13 Industrial Hygienist

The assigned IH is the primary source for information regarding nonradiological hazardous and toxic agents at the task site. The IH assesses the potential(s) for worker exposure(s) to hazardous agents according to the INEEL *Safety and Health Manual* MCPs and accepted industry IH practices and protocol. By participating in task-site characterization, the IH assesses and recommends appropriate hazard controls for the protection of task-site personnel, operates and maintains airborne sampling and monitoring equipment (reviewing for effectiveness), and recommends and assesses the use of personal protective equipment (PPE) required in this HASP, recommending changes as appropriate.

The IH will review all "Employee Job Function Evaluations," Form 340.02, to validate the management's completion of the form. After validation, the form is sent to the OMP for the scheduling of a medical evaluation, as needed.

Following an evacuation, the IH will assist the CE in determining whether conditions exist for safe task-site reentry. The IH, their supervisor, or the HSO will refer employees showing health effects (signs and symptoms) resulting from possible exposure to hazardous agents to the Occupational Medical Program (OMP). The IH may have other duties at the task site, as specified in other sections of this HASP, or in INEEL PRDs and/or MCPs. During emergencies involving HAZMATs, airborne sampling and monitoring results will be coordinated with members of the Emergency Response Organization (ERO).

2.14 Safety Coordinator

The assigned project safety coordinator reviews work packages, observes site activity, assesses compliance with the INEEL *Safety and Health Manual*, signs safe work permits (SWPs), advises the CE on required safety equipment, answers questions on safety issues and concerns, and recommends solutions to safety issues and concerns that arise at the task site. The safety coordinator may have other duties at the task site as specified in other sections of this HASP or in INEEL PRDs and/or MCPs. The fire protection engineer's function is included under the safety coordinator designation and is the person assigned to review work packages and perform field assessments for fire protection controls.

2.15 Radiological Control Technician

The assigned project RCT is the primary source for information and guidance on radiological hazards. The RCT will be present at the task site during any work operations when a radiological hazard to personnel may exist or is anticipated. Responsibilities of the RCT include radiological surveying of the task site, equipment, and samples; providing guidance for radiological decontamination of equipment and personnel; and accompanying the affected personnel to the nearest INEEL medical facility for evaluation if significant radiological contamination occurs. The RCT must notify the CE of any radiological occurrence that must be reported as directed by the INEEL *Radiation Protection Manual*. The RCT may have other duties at the task site as specified in other sections of this HASP or in INEEL PRDs and/or MCPs.

2.16 Radiological Engineer

The radiological engineer is the primary source for information and guidance relative to the evaluation and control of radioactive hazards at the task site. If a radiological hazard exists or occurs at the task site, the radiological engineer makes recommendations to minimize health and safety risks to task-site personnel. Responsibilities of the radiological engineer include:

- Performing radiation exposure estimates and as low as reasonably achievable (ALARA) evaluations
- Identifying the type(s) of radiological monitoring equipment necessary for the work
- Advising the CE and RCT of changes in monitoring or PPE
- Advising personnel on task-site evacuation and reentry.

The radiological engineer may also have other duties to perform as specified in other sections of this HASP or in the INEEL *Radiation Protection Manual.*

2.17 Facility Manager

The TAN facility manager is responsible to maintain his/her assigned facility and must be cognizant of work being conducted in the facility. The TAN facility manager is responsible for the safety of personnel and the safe completion of all project activities conducted within his/her area. Therefore, the facility manager and TAN shift supervisor (SS) will be kept informed of all activities performed in the area. The SS and CE shall agree on a schedule for reporting work progress and plans for work. The SS may serve as advisor to site personnel with regard to their area of operation.

Where applicable, the facility manager (or representative) and CE shall agree on a schedule for reporting work progress and plans for work. The facility manager (or representative) may serve as advisor to task-site personnel with regard to their area of operation. The manager will sign the SWPs and radiological work permits (RWPs) governing work performed at TAN areas excluding the GWTF.

2.18 Quality Engineer

A quality engineer provides guidance on task-site quality issues, when requested. The quality engineer observes task-site activities and verifies that task-site operations comply with quality requirements pertaining to these activities. The quality engineer identifies activities that do not comply or have the potential for not complying with quality requirements and suggests corrective actions.

2.19 TAN Site Area Director

The TAN site area director reports to the Director of Site Operations and interfaces with the TAN facility manager. The TAN Site area director is responsible for several functions and processes in the TAN area that include:

- All work processes and work packages performed in the TAN area
- Establishing and executing a monthly, weekly and daily operating plan for the TAN area
- Executing the ESH&QA program for the TAN area
- Executing the Integrated Safety Management System for the TAN area
- Executing the Integrated Work Control Plan for the TAN area
- Executing the Voluntary Protection Program in the TAN area
- Ensuring all environmental compliance within the TAN area
- Executing that portion of the voluntary compliance order that pertains to the TAN area
- Correcting the root cause functions of the accident investigation in the TAN area
- Correcting the root cause functions of the voluntary compliance order for the TAN area.

Note: *An interface agreement shall be written to clarify roles and responsibilities between facility area directors and ER when more than one facility is involved in the work.*

2.20 Project Scientist

The ER project scientist has the responsibility to ensure that all technical activities are planned and conducted to meet project goals and objectives as stated in the ROD (1995) and SOW (DOE-ID 1997b). The project scientist ensures treatability studies defined in the ROD are conducted in accordance with the EPA Guide for Conducting Treatability Studies under CERCLA and subtier company MCPs and PRDs. The project scientist ensures coordination between teams conducting treatability studies to insure field activities of one do not interfere with another or with base case pump-and-treat operations. The project scientist oversees individual teams focused on the five treatability studies to ensure that implementation of the study meets project goals and objectives. The project scientist is also responsible to maintain an external peer review team and requests their review of technical planning documents and test reports as necessary. The project scientist has a lead role in presenting information on treatability studies to the agencies during conference calls and meetings.

2.21 ER Environmental Compliance Officer

The ER environmental compliance officer provides environmental management functions for ER programs. The specific management functions include coordination of, and performance of monitoring, and reporting of ER environmental matrix functions and project system activities involving regulatory affairs and environmental process compliance. Service functions include providing technical guidance in environmental compliance, site wide plans and procedures, and providing environmental documentation review and comment as well as coordinating ER matrix support.

The assigned ER environmental coordinator oversees, monitors, and advises the PM and/or CE performing task-site activities on environmental issues and concerns by ensuring compliance with DOE orders, EPA regulations, and other regulations concerning the effects of task-site activities on the environment. The ER environmental coordinator provides surveillance on-site activities, services for hazardous waste storage and transport, and coordinates services for surface water/storm water runoff control.

2.22 OU 1-07B Facility Operators and Laboratory Technicians

Operator technicians will operate OU 1-07B facilities in accordance with the standard operating procedures, specific test plans, this HASP, INEEL MCPs and PRDs, and INEEL Conduct of Operations. Lab technicians shall analyze groundwater in accordance with sampling analysis plans and standard operating procedures. Scheduling and directing facility operations and sampling activities shall be provided by the CE/facility manager.

3. RECORDKEEPING REQUIREMENTS

3.1 Industrial Hygiene and Radiological Monitoring Records

The IH will record airborne monitoring and/or sampling data (both area and personal) on INEEL IH forms. All monitoring and sampling equipment shall be maintained and calibrated per INEEL procedures and the manufacturer's specifications. Industrial hygiene airborne monitoring and sampling data is treated as limited access information and maintained by the IH per INEEL *Safety and Health Manual* procedures. Any airborne monitoring or sampling done by nonindustrial hygiene/safety personnel will be documented in a project-controlled logbook, to be reviewed by the IH.

The RCT maintains a logbook of all radiological monitoring, daily task-site operational activities, and instrument calibrations. Radiological monitoring records are maintained according to the INEEL *Radiation Protection Manual* procedures.

Task-site personnel, or their representative(s) have a right to both IH and RCT monitoring and sampling (both area and personal) data.

3.2 CE Daily Force Report and Site Attendance Logbook

The CE will keep a record of daily task-site events in the CE daily force report. The CE shall maintain accurate records of all personnel (workers and nonworkers) who are onsite each day in a site attendance logbook. Logs and reports shall be submitted to the BBWI Administrative Record and Document Control (ARDC) Office.

3.3 Administrative Record and Document Control Office

The ARDC shall organize and maintain data and reports generated by ERP field activities. The ARDC maintains a supply of all controlled documents and provides a documented system for the control and release of controlled documents, reports, and records. Copies of the management plans for the ERP, this HASP, Section 13 of the ER Project Management Plan, the QAPjP, and other documents pertaining to this work are maintained in the project file by the ARDC. All project records and logbooks, except IH and RCT logbooks, must be forwarded to ARDC. The OU 1-07B operations training records and training specified in Section 4, Table 4-1 of this HASP shall be kept onsite at all times.

4. PERSONNEL TRAINING

All task-site personnel shall receive training as specified in OSHA 29 CFR 1910.120/1926.65 and the INEEL *Safety and Health Manuals*. Radiation workers shall be trained according to the INEEL *Radiation Protection Manual,* MCP-126. Table 4-1 summarizes training requirements for task-site personnel. Specific training requirements for each worker may vary depending on the hazards associated with their individual job assignment.

Proof that all required training courses were completed (including refresher training) must be maintained on the site at all times. Examples of acceptable written training documents include: INEEL "40 Hour OSHA HAZWOPER Card," INEEL "Respirator Authorization Card," "DOE Certificate of Core Radiological Training I or II Card," "Medic/First-Aid Training Card," and/or a copy of an individual's or departments TRAIN system printout demonstrating completion of training. A copy of the certificate issued by the institution where the training was received is also acceptable proof of training. The CE and subcontractor's JSS is responsible to assure worker's training is current.

Before beginning work at the task site, a task-site-specific safety orientation will be conducted by the CE, HSO, and JSS. The orientation will consist of a complete review of this HASP and attachments, with time for discussion and questions. At the time of the safety orientation, personnel training records will be checked and verified to be current and complete for all required training shown in Table 4-1. Upon completing the safety orientation, personnel will sign the training acknowledgement form (Appendix A of this HASP) indicating that they have received the safety orientation briefing and understand the HASP.

On task-site projects lasting longer than 3 days, the CE, JSS, or HSO will monitor each worker's performance for the 3 days of task-site activities. This will satisfy the 24-hour HAZWOPER task site-specific training. After observing satisfactory work performance, the supervisor completes the training checklist evaluation. After satisfactory completion of training, workers sign the evaluation checklist indicating that they have received the task site-specific safety orientation and reviewed and understand the HASP.

Note: *See Appendix A and B for copies of project forms that must be submitted to the environmental operations (EO) training coordinator for inclusion in the TRAIN system. This information must be submitted within 5 working days of the completion of the training.*

Note: Project personnel *training records shall be forwarded to the EO training coordinator (MS 3902)*

The CE, HSO, RCT, and JSS will provide a daily briefing of the task(s) to be performed that day, as applicable. During the briefing the tasks are to be outlined, hazards identified, hazard controls and work zones established, PPE requirements discussed, and personnel questions answered. At the completion of this briefing work control documents will be read and signed (SWP[s], RWP[s], etc.).

Table 4-1. Required training for task-site personnel.

Task/position (Topic)	CE and JSS (Required)	Field Team (Required)	HSO (Required)	Occasional Workers (Required)
Site Specific orientation	X	X	X	X
Decontamination[a]	X	X	X	X[b]
Hazard communication[a]	X	X	X	X
Site control and warning devices[a]	X	X	X	X
Emergency Action Plan for task site[a]	X	X	X	X
40-hour HAZWOPER[c]	X	X	X	X[e]
24-hour HAZWOPER supervised field experience[d]	X	X	X	X[e]
8-hour HAZWOPER site supervisor	X		X	
Hearing conservation[e]	X	X	X	X
Radiological Worker I or Radiological Worker II[e]	X	X	X	X
Medic—CPR* and First-Aid[f]	X	X	X	X
Respirator qualification and fit test[g]	X	X	X	X
24-hour HAZWOPER occasional worker[h]				X[e]
8-hour HAZWOPER supervised field experience				X
Confined space entrant/attendant[e]	X	X	X	X
Confined space job entry supervisor[e]	X	X	X	X
HAZMAT employee general awareness training[i]	X	X	X	X

a. Will be included in task site orientation.

b. If entering contaminated areas.

c. Includes 40 hours of classroom instruction and 24 hours of supervised field experience.

d. Training shall be documented by a checklist (Section 13 of this HASP) completed and signed by the project CE or JSS.

e. As appropriate.

f. Two Medic—CPR and First-Aid qualified individuals must be present during task-site activities.

g. If entering areas requiring respirator use.

h. Includes 24 hours of classroom instruction and 8 hours of supervised field experience.

i. If identified as "HAZMAT" employee (i.e., anyone who directly affects HAZMAT transportation safety by handling, packaging, labeling, loading, unloading, moving, driving, etc. [per 49 CFR 171.8]).

* CPR = cardiopulmonary resuscitation.

5. OCCUPATIONAL MEDICAL PROGRAM AND SURVEILLANCE

OU 1-07B site personnel shall participate in the INEEL OMP, as required by DOE Order 5480.8a and OSHA 29 CFR 1910.120/1926.65. Medical surveillance examinations will be provided before assignment, annually, and after termination of hazardous waste site duties or employment. This includes personnel who are or may be exposed to hazardous substances at or above the OSHA permissible exposure limit (PEL) or published exposure limits, without regard to respirator use, for 30 or more days per year. Personnel who wear a respirator in performance of their job, or who are required to take respirator training to perform their duties under this plan, must participate in the medical evaluation program for respirator use at least annually as required by 29 CFR 1910.134. BBWI employees assigned to this project will have their names placed on a list. The list along with a copy of the HASP, task hazardous analysis, required PPE, confined space entry, and other exposure related documentation shall be sent to the OMP director by the project manager to determine if medical surveillance is required. For subcontractors, a single copy of the HASP, task hazardous analysis, required PPE, confined space entry, and other exposure related documentation shall be sent to the subcontractor's physician by the project manager to determine if medical surveillance is required. Exposure monitoring results and hazard information furnished to the OMP physician must be supplemented or updated annually as long as the employee is required to maintain a hazardous waste/HAZMAT employee medical clearance.

Note: *Project management shall ensure that an Employee Job Function Evaluation is validated by the project IH and then submitted to the OMP for review before any employee can begin work on the project.*

The OMP physician shall evaluate the physical ability of an employee to perform the work assigned, as identified in the site HASP or other job-related documentation. A documented medical clearance (physician's written opinion) will be provided to the employee and line management stating whether the employee has any detected medical condition that would place him/her at increased risk of material impairment of his/her health from work in hazardous waste operations, emergency response, respirator use, and confined space entry (as applicable). The physician may impose restrictions on the employee by limiting the amount and/or type of work performed.

Note: *Employees shall not be permitted to work on the project until the OMP has sent a medical clearance to management or the IH has validated that no substance-specific medical evaluation is necessary.*

Areas addressed by the OMP for hazardous waste site employees include, but are not limited to:

- Current comprehensive medical examinations (as determined by the examining physician) at an INEEL medical facility for full-time employees
- Records/reports from employee's private physicians, as required by the OMP director
- Medical evaluation by the OMP on return to work following an absence in excess of 1 work week (40 consecutive work hours) resulting from illness or injury
- Medical evaluation in the event that management questions the ability of an employee to work
- Medical evaluation in the event that an employee questions their own ability to work.

The information provided on the forms and by employee examination is used to determine the following for each employee:

- Ability to perform relevant occupational tasks
- Ability to work in PPE and heat/cold stress environments
- Ability to use respiratory protection
- Entry into substance-specific medical surveillance programs.

Note: *If the OMP does not have sufficient information to complete a medical evaluation before respirator training, the employee's supervisor will be notified. The employee will not be permitted to fit test until the needed information is provided and any additional examination or testing is completed.*

Radiation Control (RADCON) personnel will refer employees to the OMP for an evaluation of medical intervention when an abnormal radiological exposure is suspected or occurs based on calculated committed effective dose-equivalent values.

5.1 Subcontractor Workers

Subcontractor task-site personnel shall participate in the subcontractor's OMP that satisfies the requirements of OSHA 29 CFR 1910.120/1926.65, which requires medical surveillance examinations before assignment, annually, and after termination of hazardous waste duties.

Medical data from the subcontractor employee's private physician, collected pursuant to HAZWOPER worker qualification, shall be made available to the project OMP upon request. Also, subcontractor employee's past radiation exposure histories must be submitted to INEEL radiation dosimetry and records, per Chapter 2 of the INEEL *Radiation Protection Manual,* MCP-188, "Issuance of TLDs and Obtaining Personnel Dose History" and MCP-2381, "Personnel Exposure Questionnaire."

5.2 Injuries on the Task Site

It is INEEL's policy that the OMP examine all injured employees if they are injured on the job, if they are experiencing signs and symptoms consistent with exposure to a HAZMAT, or if there is reason to believe that they have been exposed to toxic substances, or physical or radiological agents in excess of allowable limits.

Note: *Subcontractor employees will be taken to the closest INEEL medical facility to have an injury stabilized before transport to the subcontractor's treating physician or medical facility.*

In the event of a known or suspected injury or illness due to exposure to a hazardous substance, or physical or radiological agent, the employee(s) shall be transported to the nearest INEEL medical facility for evaluation and treatment, as necessary. The following information, or as much as is available, will accompany the individual to the medical facility:

- Name, job title, work (task-site) location, and supervisor's name and phone number

- Substances, physical or radiological agents (known or suspected), material safety data sheet (MSDS) if available
- Date of employee's first (known) exposure to the substance, or physical or radiological agent
- Locations, dates, and results of any airborne exposure monitoring and/or sampling
- PPE in use during this work (e.g., type of respirator and cartridge used)
- Number of days per month PPE has been in use
- Anticipated future exposure to the substance, or physical or radiological agent.

Further medical evaluation will be determined by the treating/examining physician according to the signs and symptoms observed, hazard involved, exposure level, and specific medical surveillance requirements established by the OMP director in compliance with 29 CFR 1910.120.

As soon as possible after an injured employee has been transported to the INEEL medical facility, the CE or designee will make notifications as indicated in Section 11.5 of this HASP.

5.3 Substance-specific Medical Surveillance

No substance-specific medical surveillance requirements apply to personnel working at the task site.